Conference Abstract

ELIXIR Europe on the Road to Sustainable Research Software

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Abstract

ELIXIR (ELIXIR Europe 2019a) is an intergovernmental organization that brings together life science resources across Europe. These resources include databases, software tools, training materials, cloud storage, and supercomputers. One of the goals of ELIXIR is to coordinate these resources so that they form a single infrastructure. This infrastructure makes it easier for scientists to find and share data, exchange expertise, and agree on best practices. ELIXIR's activities are divided into the following five areas: Data, Tools, Interoperability, Compute and Training, each known as "platform". The ELIXIR Tools Platform works to improve the discovery, quality and sustainability of software resources. The Software Development Best Practices task of the Tools Platform aims to raise the quality and sustainability of research software by producing, adopting, and promoting information standards and best practices relevant to the software development life cycle. We have published four (4OSS) simple recommendations to encourage best practices in research software (Jiménez et al. 2017) and the Top 10 metrics for recommended life science software practices (Artaza et al. 2016).

The 4OSS simple recommendations are as follows:

1. Develop a publicly accessible open source code from day one.

2. Make software easy to discover by providing software metadata via a popular community registry.

3. Adopt a license and comply with the licenses of third-party dependencies.

4. Have clear and transparent contribution, governance and communication processes.

In order to encourage researchers and developers to adopt the 4OSS recommendations and build FAIR (Findable, Accessible, Interoperable and Reusable) software, the best practices group, in partnership with the ELIXIR Training platform, The Carpentries (Carpentries 2019, ELIXIR Europe 2019b), and other communities, are creating a collection of training materials (Kuzak et al. 2019). The next step is to adopt, promote, and recognise these information standards and best practices. The group will address this by (i) developing comprehensive guidelines for software curation, (ii) through training researchers and developers towards the adoption of software best practices and (iii) improvement of the usability of Tools Platform products. Additionally, a direct outcome of this task will be a software management plan template, connected to a concise description of the guidelines for open research software; and production of a white paper for the software development management plan for ELIXIR, which can be consequently used to produce training materials. We will work with the newly formed ReSA (Research Software Alliance) to facilitate the adoption of this plan for the broader community.

Keywords

software best practices, software management plan, software sustainability, reproducible research, open source software, open science

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References

- Artaza H, Chue Hong N, Corpas M, Corpuz A, Hooft R, Jimenez R, Leskošek B, Olivier B, Stourac J, Svobodová Vařeková R, Van Parys T, Vaughan D (2016) Top 10 metrics for life science software good practices. F1000 Research https://doi.org/10.12688/f1000research.9206.1
- Carpentries (2019) The Carpentries. carpentries.org. Accessed on: 2019-4-05.
- ELIXIR Europe (2019a) ELIXIR | A distributed infrastructure for life-science information. https://www.elixir-europe.org. Accessed on: 2019-4-05.
- ELIXIR Europe (2019b) ELIXIR teams up with The Carpentries to boost its training programme. https://elixir-europe.org/news/elixir-carpentries-agreement. Accessed on: 2019-4-05.
- Jiménez RC, Kuzak M, Alhamdoosh M (2017) Four simple recommendations to encourage best practices in research software. F1000Research 6 (876). https://doi.org/10.12688/f1000research.11407.1
- Kuzak M, Silva R, Michonneau F, Martinez PA, Hodges T, Psomopoulos EF, Via A, Dominguez del Angel V, Fernandez P, Martinez C, Batut B, Sharan M (2019) SoftDev4Research/4OSS-lesson: first lesson release. https://doi.org/10.5281/zenodo.2565040. Accessed on: 2019-4-05.